# LUMILEDS

# Technical Data
# ChipStrip Lighting

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## Features
- Polycarbonate Strip of Light
- LED-Based Solid State Lighting
- Low Voltage (24 VDC)
- Mounting with Double Sided Tape
- Modular Design
- Rugged, Impact-Resistant
- Wide Operating Temperature Range
- ⓊⓁUL Approved

## Benefits
- Easy to Transport, No Glass to Break
- Uniform Color Appearance
- Safe for Use Anywhere – No High Voltages or Toxic Materials
- Minimal Maintenance
- Low Operating Costs
- Long Life



## Description
The ChipStrip Contour Lighting Product is comprised of a linear array of solid state light emitting diodes (LEDs) mounted on an elongated printed circuit board. These boards are encased inside a translucent polycarbonate housing, which is sealed at both ends. The ChipStrip unit has interconnects at each end that allow for easy modular interconnectivity, either to a power source or an adjacent ChipStrip unit.

A series of these ChipStrip units can be mounted end-to-end (or in an X, Y or T branch configuration) along the roof or edge of a building to produce a bright, continuous contour of light that consumes a fraction of the power consumed by conventional light sources.

ChipStrip is made with an advanced optical grade polycarbonate housing, which offers superior high temperature and moisture resistance performance in outdoor environments. The polycarbonate extrusion housing material is tough and impact resistant. In addition, the polycarbonate housing is doped with UV-a and UV-b inhibitors to reduce the effects of long-term exposure to direct sunlight.

ChipStrip is available in a variety of colors: red, amber, orange, green, and blue. It is also available in two cross-sectional styling options: semicircular, or round, each with its own attachment mechanism to a building. The semicircular extrusion is ideal for flat, even surfaces, such as a parapet cap. Alternatively, the round extrusion is designed for uneven surfaces such as stucco.

The ChipStrip is made in 10 foot (3 meter) lengths that can be shortened at the site of installation and all fittings can be neatly concealed. Thus, each installation can be customized for a location.

## ChipStrip Components
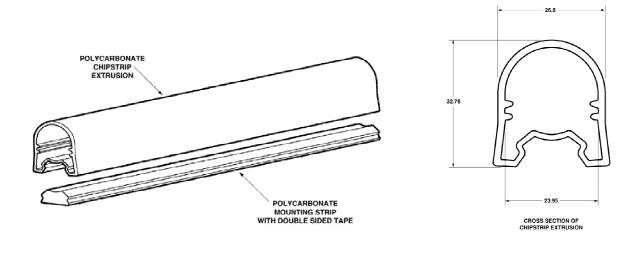
The ChipStrip system consists of the following components.

| Part Number | Product | Picture |
| --- | --- | --- |
| HLCS-SC00-60010 | Power Supply |  |
| HLCS-KX88-XXXXX | 3.05m (10 ft.) extrusion with adapter rings assembled at each end, filled with 1 "Start" and 4 "Center", interconnected circuit boards |  |
| HLCS-KX88-XXXXX | 3.05m (10 ft.) extrusion with adapter rings assembled at each end, filled with 1 "End" and 4 "Center", interconnected circuit boards |  |
| HLCS-EX00-XXXXX | Extrusion - 3.05m (10 ft.) with adapter rings on each end |  |
| HLCS-FC00-24060 | Polycarbonate Adapter Ring |  |
| HLCS-F000-000G0 | 3g tube of Loctite 401 glue |  |

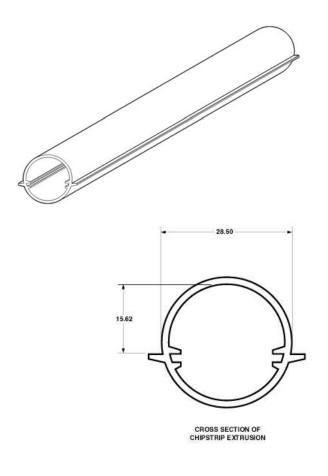| HLCS-CP00-XXXXX | Power Input Cable |  |
|---|---|---|
| HLCS-FX00-032A0 | Silicone Bellows Joiner |  |
| HLCS-FX00-01010 | Silicone End Cap |  |
| HLCS-FM88-16000 | Polycarbonate Mounting Strip, 3.05 meter length, with double sided tape | |
| HLCS-FM00-20080 | Polycarbonate Mounting Clip |  |
| HLCS-BX00-645A0 | Variable "Start" Circuit Board |  |
| HLCS-BX00-XXXXX | "Center" Circuit Board |  |

| | | |
|---|---|---|
| HLCS-BX00-643A0 | Variable "End" Circuit Board |  |
| HLCS-P000-00000 | Parrot Beak Connector |  |
| HLCS-CS00-XXXXX | Straight Joiner Cable |  |

# Two Package Styles Available

## Semi-Circular:

POLYCARBONATE
CHIPSTRIP
EXTRUSION

26.8

32.76

23.95

POLYCARBONATE
MOUNTING STRIP
WITH DOUBLE SIDED TAPE

CROSS SECTION OF
CHIPSTRIP EXTRUSION

## Round + Clip:

POLYCARBONATE
MOUNTING CLIP

28.50

15.62

40.0

30.2

24.8

25.6

CROSS SECTION OF
CHIPSTRIP EXTRUSION

∅ 4.2

∅ 25.6

All dimensions in mm unless stated otherwise
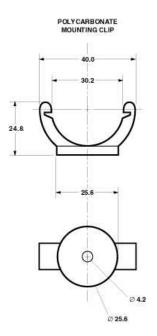
## Mechanical Characteristics

### ChipStrip Extrusion

| Outside Diameter | Typical (inch) | Typical (mm) |
|---|---|---|
| Semicircular Extrusion | 1.055 | 26.80 |
| Round Extrusion | 1.122 | 28.50 |
| Bellows and End Caps | 1.378 | 35.00 |
| Polycarbonate Extrusion Module length | 120 | 3050 |

### Circuit Boards

| Description – Red, Amber, Orange, Green, Blue Colors | Length (inch) | Length (mm) |
|---|---|---|
| Start Board – can be shortened in 1.3" increments | 14.5 | 368.3 |
| Center Board | 24 | 609.6 |
| End Board – can be shortened in 1.3" increments | 14.5 | 368.3 |

## Materials and Ratings

| Parameter | Description |
|---|---|
| Material | UV-a and UV-b resistant polycarbonate |
| Fire Rating | US-UL 94-HB or equivalent |
| Integrity of ChipStrip | IP 65 |
| UL System Approval | Approved to UL48 |
| Integrity of Power Supply- Option 2 | IP 66 |

## Optical Characteristics

| Color | Typical Dominant Wavelength ($\lambda$ dom) | Typical Luminance (L) |
|---|---|---|
| Red | 632 nm | 81 Cd/m$^2$ |
| Amber | 590 nm | 150 Cd/m$^2$ |
| Orange | 610 nm | 100 Cd/m$^2$ |
| Green | 525 nm | 60 Cd/m$^2$ |
| Blue | 470 nm | 20 Cd/m$^2$ |

## Temperature Ratings

| | | |
|---|---|---|
| Storage Temperature | | |
|    Power Supply- Option 1 | -20$^o$C to +85$^o$C | -4$^o$F to +185$^o$F |
|    Power Supply- Option 2 | -40°C to +85°C | -40$^o$F to +185$^o$F |
|    All other components | -40$^o$C to +100$^o$C | -40$^o$Fto +212$^o$C |
| Operating Temperature | | |
|    Power Supply- Option 1 | -20$^o$C to +70$^o$C | -4$^o$F to +158$^o$F |
|    Power Supply- Option 2 (direct sunlight) | -40°C to +50°C | -40$^o$F to +122$^o$F |
|                (shade) | -40°C to +80°C | -40$^o$F to +202$^o$F |
|    All other components | -40$^o$C to +85$^o$C | -40$^o$F to +185$^o$F |

## Electrical Characteristics- ChipStrip Lighting

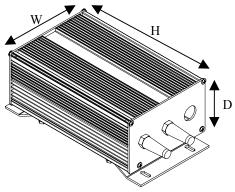| Parameter | Typical | Units |
|---|---|---|
| Current – Red, Orange, Amber PCB | 0.24 | A/m |
| Current – Red, Orange, Amber PCB | 0.07 | A/ft |
| Wattage – Red, Orange, Amber PCB | 5.92 | W/m |
| Wattage – Red, Orange, Amber PCB | 1.80 | W/ft |
| Current – Blue, Green PCB | 0.23 | A/m |
| Current – Blue, Green PCB | 0.07 | A/ft |
| Wattage – Blue, Green PCB | 5.75 | W/m |
| Wattage – Blue, Green PCB | 1.75 | W/ft |

# Electrical Characteristics

**Sealed Weatherproof Power Supply (Part # HLCS-SC00-60010)**

This ChipStrip DC Power Supply should be installed vertically, with the conduit entry at the bottom. If installing horizontally, ensure adequate free air circulation space of 6 in./150mm between the units. Ensure 4 in./100mm clearance between modules is maintained. The power supply *must* be mounted using *all four* mounting holes. Do NOT mount the unit in direct sunlight where ambient temperature will exceed 122°F (50°C). (The power supply must be shielded from direct sunlight in mounting conditions greater than 122°F (50°C ).) Install cable in accordance with local codes. AC supply cable should be suitable for 240W. DC output cable should be suitable for 4.2A.

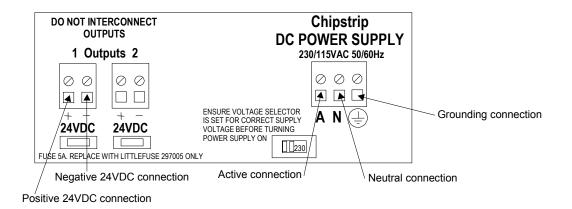| Description | WxHxD (inch) | WxHxD (mm) |
|---|---|---|
| 200W, 2 outputs | 6.5x10x4.5 | 162x256x114 |

Sealed Weatherproof Power Supply Dimensions:



IMPORTANT INSTALLATION SAFETY RULES:

For continued protection from and to reduce the risk of fire or electric shock, carefully follow these instructions:

1. Ensure the voltage selector is in the correct position before power is applied for use in the USA. The voltage selector must be placed in the 115V position. For countries other than the USA, the voltage selector may need to be placed in the 230V position. Confirm the voltage available at each country location before using the product.
2. Do not interconnect output terminations.
3. Fuses must be replaced only with LITTLE FUSE mini 3 Amp auto blade fuse Part #297003.
4. An insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch-circuit supply conductors except that it is green with or without one or more yellow stripes is to be installed as part of the branch circuit that supplies the unit or system. The grounding conductor (as described above) is to be grounded to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor generator set. The attachment plug receptacles in the vicinity of the unit or system are all to be of a grounding type, and the grounding conductors serving these receptacles are to connected to earth ground at the service equipment.
5. Use only STO or SO power cords, suitable for operation at 125°C.
6. A separate switched, grounded socket outlet should be installed for each ChipStrip DC Power Supply.
7. Power supply wiring should be run in separate conduits from the low voltage DC output wiring.

DO NOT INTERCONNECT OUTPUTS

1 Outputs 2

24VDC    24VDC

FUSE 5A. REPLACE WITH LITTLEFUSE 297005 ONLY

Chipstrip
DC POWER SUPPLY
230/115VAC 50/60Hz

ENSURE VOLTAGE SELECTOR IS SET FOR CORRECT SUPPLY VOLTAGE BEFORE TURNING POWER SUPPLY ON

A N

230

Grounding connection

Negative 24VDC connection

Positive 24VDC connection

Active connection

Neutral connection

## Sealed Weatherproof Power Supply

| Parameter | Typical | Units |
|---|---|---|
| Input Voltage | 110/230 | V (ac) |
| Input Power | 210 | W (ac) |
| Output Voltage | 24 | V (DC) |
| Maximum Capacity of Power Supply | 24 <br> 78 | m <br> ft |
| Number of Output Terminals per Power Supply | 2 | |
| Maximum Capacity of each Output Terminal | 12 <br> 39 | m <br> ft |
| Output Fuse rating | 4.2 | A |
| AC Load of Power Supply | 7.5 <br> 2.2 | W/m <br> W/ft |
| Current Draw:  Fully Loaded Power Supply | 1.9 | A (ac) |
| Maximum length of low voltage cable from power supply to ChipStrip | 15 <br> 49 | m <br> ft |

The DC Power Supply conforms to UL1012 and has an IP rating of IP66 (rainproof)

| | |
|---|---|
| AC SUPPLY INPUT | 230/110 VAC 50/60Hz. <br> 1 phase voltage is selectable via switch inside unit.  210W nominal. |
| DC OUTPUTS | 2 current limited outputs, 24VDC 3A maximum each |
| Terminal type | Screw type, 2.5mm² maximum |
| Protection | Self resetting thermal cutouts on both the transformer and circuit board.  The transformer cut out isolates the mains supply, and the circuit board cut out deactivates the output.  The output will be restored automatically when the unit has cooled. |
| Operating temperature | -40°C to +50°C maximum vertical or horizontal mounting in direct sun light <br> -40°C to +80°C maximum vertical or horizontal mounting in shade |
| Storage temperature | -40°C to +85°C maximum |
| Output Cable type | For all connection, use wires suitable for at least 85°C ambient, type STO or SO suitable for Outdoor use.  Use 22awg wire shielded cable, Belden cable p/n 9512 |
| Fuse type | "LITTLEFUSE" type 297003, 3A mini auto blade fuse ONLY |

# LUMILEDS

**Lumileds Lighting:
The Revolution of Lighting**

Lumileds Lighting is a joint venture between Philips Lighting and Agilent Technologies.

Agilent Technologies, an $8 billion startup, is the result of the strategic realignment of Hewlett-Packard, producer of the world's brightest red and amber LEDs, as well as state-of-the-art, high-brightness LEDs in blue, green, white, and other colors.

Philips is a global leader in developing, manufacturing and marketing innovative lighting products worldwide.

Lumileds Lighting is changing the future of lighting by inventing new lighting technologies for a wealth of commercial, industrial, institutional, and consumer applications. By combining the lighting expertise of Philips and the LED technology strength of Agilent, our products bring value to lighting solutions of all kinds. Lumileds Lighting reduces waste and power consumption worldwide by developing long-lasting, energy-efficient products.

**Lumileds Lighting**
An Agilent Technologies & Philips Lighting Joint Venture

www.lumileds.com

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